

PATENT ABSTRACTS OF JAPAN

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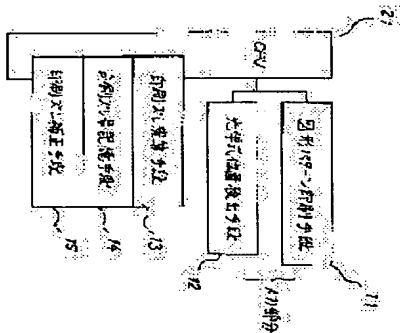
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(54) SERIAL PRINTER

(57)Abstract:

PURPOSE: To correct shear in printing automatically without assistance in the case of test printing by a method wherein after printing is performed in a printing mode A and its positional detection is performed, printing is performed in a printing mode B and a positional data of a partner performing its positional detection is stored in a printing shear quantity memory means to correct both respectively.

CONSTITUTION: Printing operation is executed in a direction X in a printing mode A with a graphic pattern printing means 11, and a positional detecting operation is executed with an optical position detecting means 12. Positional information A is read in a micro-computer 21. Further, after executing paper feed operation, the graphic pattern printing operation is executed in a direction Y, and positional information A is read. Then, printing and detecting operation in a different printing mode B are executed in the same way, and the positional information B, B are read. Thereafter, values of (A, -B), (B, -A) are stored in a printing shear quantity memory means 14. In two way printing thereafter, correction of (A, -A) content in the printing mode A and correction of (B, -B) content in the printing mode B are respectively performed with a printing shear correcting means 15.



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CLAIMS

[Claim(s)]

[Claim 1] The figure pattern printing means for printing one or more figure patterns in one line.

The optical position detection means for scanning the form top after the aforementioned printing execution by the one way in the printing direction, and detecting each aforementioned figure pattern position. The printing gap operation means for performing a predetermined operation based on the detection value detected by the aforementioned optical position detection means. The amount storage means for performing the result of an operation obtained by the aforementioned printing gap operation means. In serial printer equipment equipped with the printing gap amendment means for usually using for the printing gap amendment in printing the value memorized by the aforementioned amount storage means of printing gaps. Printing the line which contains one or more figure patterns by the aforementioned figure pattern printing means at the time of test printing started by the predetermined method. After the aforementioned optical position detection means detects each figure pattern position, in quest of the amount of gaps in the printing section, it memorizes for the aforementioned amount storage means of printing gaps by the aforementioned printing gap operation means. Serial printer equipment characterized by usually performing good printing in printing, without carrying out adjustment by viewing, without giving the aforementioned printing gap amendment means in subsequent usual printings.

[Claim 2] printing gap of the spacing in bidirectional printing -- an automatic amendment -- the serial printer equipment according to claim 1 characterized by things

[Claim 3] gap by the printing direction of each dot in a line -- an automatic amendment -- the serial printer equipment according to claim 1 or 2 characterized by things

[Claim 4] Serial printer equipment characterized by performing a claim 1 and automatic amendment according to claim 2 or 3 in each printing mode in the serial printer equipment which has one or more printing modes.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention relates to serial printer equipment.

[0002]

[Summary of the Invention] this invention, printing the line which contains one or more figure patterns by the figure pattern printing means in serial printer equipment at the time of test printing started by the predetermined method By memorizing for the amount storage means of printing gaps in quest of the amount of gaps in the printing section by the printing gap operation means, and giving the aforementioned printing gap amendment means in subsequent usual printings, after an engineering formula position detection means detects each figure pattern position it makes it possible to usually perform good printing in printing, without carrying out adjustment by viewing.

[0003]

[Description of the Prior Art] What is depended on viewing was common, and even if the printing gap adjustment [in / conventional serial printer equipment] in bidirectional printing was equipped with the optical position detection means, it was common to have used the detection difference at the time of bidirectional printing of the predetermined position on the printing carriage section or a platen for amendment.

[0004]

[Problem(s) to be Solved by the Invention] However, by adjustment by viewing, it was influenced by experience, feeling, etc. of an operator, the adjustment man day of adjustment precision was also great, and by the method of searching for the detection difference at the time of bidirectional printing of the predetermined position on the printing carriage section or a platen, since the detected body was not the printing section on the form which is a medium, the problem was in reliability.

[0005] Then, the place which this invention is for solving such a trouble, and is made into the purpose is for it to be exact and automatic at the time of test printing, and perform printing gap amendment at it, without minding people's hand.

[0006]

[Means for Solving the Problem] The figure pattern printing means for the printer equipment of this invention printing one or more figure patterns in one line. The optical position detection means for scanning the form top after the aforementioned figure pattern printing means execution by the one way in the printing direction, and detecting each aforementioned figure pattern position. The printing gap operation means for performing a predetermined operation based on the detection value detected by the aforementioned optical position detection means. The amount storage means of printing gaps for memorizing the result of an operation obtained by the aforementioned printing gap operation means. In serial printer equipment equipped with the printing gap amendment means for usually using for the printing gap amendment in printing the value memorized by the aforementioned amount storage means of printing gaps Printing the line which contains one or more figure patterns by the aforementioned figure pattern printing means at the time of test printing started by the predetermined method After the aforementioned

optical position detection means detects each figure pattern position, in quest of the amount of gaps in the printing section, it memorizes for the aforementioned amount storage means of printing gaps by the aforementioned printing gap operation means. It is characterized by usually performing good printing in printing, without carrying out adjustment by viewing, without giving the aforementioned printing gap amendment means in subsequent usual printings.

[0007] In addition, you may use for automatic amendment of printing gap of the spacing in bidirectional printing. Moreover, you may use for automatic amendment in the printing direction of each dot in a line of gap. Furthermore, you may use for automatic amendment with each printing mode in the serial printer equipment which has one or more printing modes.

[0008]

[Function] According to the above-mentioned composition of this invention, it makes it possible to usually carry out good printing in printing, without carrying out adjustment by viewing.

[0009]

[Example] Hereafter, this invention is explained in detail based on an example.

[0010] Drawing 1 is one example which consists of a microcomputer 21 and a peripheral device. The microcomputer 21 shown here summarizes CPU, ROM, RAM, input/output port, an A/D converter, etc.

[0011] The figure pattern printing means 11 and the optical position detection means 12 are connected to the input/output port of a microcomputer 21. If a figure pattern printing demand signal is sent from a microcomputer 21 by this, printing operation will be performed in the direction of X in the printing mode A. Moreover, if an optical position detection demand signal is sent, it will scan in the specific direction and position detection operation will be performed, and detected positional information Alpha is read into a microcomputer 21. Furthermore, figure pattern printing operation is performed in the direction of Y by print mode A after ejection operation execution, and position detection operation is performed in the specific direction. Detected positional information Abeta is read into a microcomputer 21. Next, printing and detection operation are similarly performed in different printing mode B, and detected positional information Balpha and Bbeta are read into a microcomputer 21. Moreover, the operation expression for a printing gap operation is set to the microcomputer 21 by ROM or RAM as a printing gap operation means 24. For example, if it is set as [A, B] alpha-[A, B] beta, the value of Alpha-Bbeta and B alpha-A beta will be memorized by the amount storage means 14 of printing gaps in a microcomputer 21. Thereby, in subsequent bidirectional printings, as for the time of the printing mode A, the printing gap amendment means 15 amends a part for B alpha-B beta, respectively at the time of Alpha-Abeta and the printing mode B at the time of printing of X or the direction of Y. The above-mentioned A, B, and X and Y are mutually different printing mode and the printing direction. Moreover, the above-mentioned operation expression [A, B] alpha-[A, B] beta is only a mere example. As mentioned above, it is an example of automatic amendment of printing gap of the spacing in bidirectional printing.

[0012]

[Effect of the Invention] It becomes possible to usually carry out good printing in printing, without carrying out adjustment [according to / like / this invention] by viewing described above.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] Drawing which specifies the composition of this invention.

[Description of Notations]

11 Figure Pattern Printing Means

12 Optical Position Detection Means

13 Printing Gap Operation Means

14 The Amount Storage Means of Printing Gaps

15 Printing Gap Amendment Means

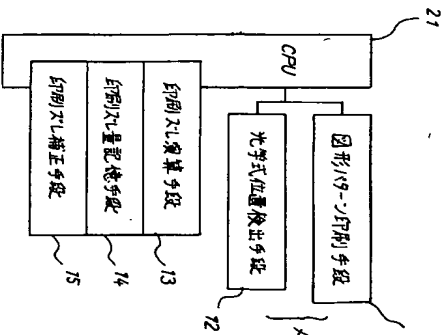
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(54)【発明の名称】 シリアル・フリンタ装置

(57)【要約】
【目的】 テラト印字時に、印刷スレ補正を人手を介さずに自動的に行う。
【構成】 印刷シートAで印刷し、位置検出を行う。次に、印刷シートBで印刷を行い、位置検出を行う相方の位置データを印刷スレ量記憶手段14に記憶し、それぞれ補正する。



(2)

特開平5-69625

【特許請求の範囲】

【請求項1】 1行中に1つ以上の図形・パターン印刷を行うための図形・パターン印刷手段と、

前記印刷実行後の用紙上を印刷方向に単方向で進進し、前記図形・パターン位置の検出を行うための光学式位置検出手段と、

前記光学式位置検出手段により検出された検出値に基づき所定の演算を行うための印刷スレ演算手段と、
前記印刷スレ演算手段により得られた演算結果を行うための印刷スレ量記憶手段と、

前記印刷スレ量記憶手段に記憶された値を通常印刷における印刷スレ補正に用いるための印刷スレ補正手段、を備えるシリアル・フリンタ装置において、

所定の方法で超動されるテラト印字時に、前記図形・パターン印刷手段により1つ以上の図形・パターンを含む行を印刷しなから、各図形・パターン位置を前記光学式位置検出手段により検出した後、前記印刷スレ演算手段により印刷部におけるスレ量を求める前記印刷スレ量記憶手段に記憶し、以降の通常印刷において前記印刷スレ補正手段を施すことなく、目視による調整をすることなく、通常印刷において良好な印刷を行うことを特徴とするシリアル・フリンタ装置。

【請求項2】 双方向印刷における行間の印刷スレを自動補正することを特徴とする請求項1記載のシリアル・フリンタ装置。

【請求項3】 行中における各ボットの印刷方向でのスレを自動補正することを特徴とする請求項1または請求項2記載のシリアル・フリンタ装置。

【請求項4】 1つ以上の印字モードを有するシリアル・フリンタ装置において、各印字モードで請求項1、請求項2または請求項3記載の自動補正を行うことを特徴とするシリアル・フリンタ装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】 本発明は、シリアル・フリンタ装置に関する。

【0002】

【発明の概要】 本発明は、シリアル・フリンタ装置において、所定の方法で超動されるテラト印字時に、図形・パターン印刷手段により1つ以上の図形・パターンを含む行を印刷しなから、各図形・パターン位置を工学式位置検出手段により検出した後、印刷スレ演算手段により印刷部におけるスレ量を求める印刷スレ量記憶手段に記憶し、以降の通常印刷において前記印刷スレ補正手段を施すことにより、目視による調整をすることなく通常印刷においても良好な印刷を行うことを可能にしたものである。

【0003】

【従来の技術】 従来のシリアル・フリンタ装置における、例えば双方向印刷における印刷スレ問題は目視によるものか一般的であり、また、光学式位置検出手段を備

えたものであっても、印字キヤリッジ部またはプラテン上の所定位置の双方向印刷時における検出差を補正に用いるのが一般的であった。

【0004】

【発明が解決しようとする課題】 しかし、目視による調整では調整精度は作業者の経験および感覚等に左右され調整工数も多大なものであり、また、印字キヤリッジ部またはプラテン上の所定位置の双方向印刷時における検出差を求める方法では検出結果がばらばらである用紙上の印刷部でないため信頼性に問題があった。

【0005】 そこで、本発明はこのような問題を解決するための、その目的とするところはテラト印字時に、印刷スレ補正を人の手を介さずに正確、かつ自動で行うことにある。

【0006】

【課題を解決するための手段】 本発明のフリンタ装置は、1行中に1つ以上の図形・パターンの印刷を行うための図形・パターン印刷手段と、前記図形・パターン印刷手段実行後の用紙上を印刷方向に単方向で進進し前記各図形・パターン位置の検出を行うための光学式位置検出手段と、前記光学式位置検出手段により検出された検出値に基づき所定の演算を行うための印刷スレ演算手段と、前記印刷スレ演算手段により得られた演算結果の記憶を行うための印刷スレ量記憶手段と、前記印刷スレ量記憶手段に記憶された値を通常印刷における印刷スレ補正に用いるための印刷スレ補正手段、を備えるシリアル・フリンタ装置において、所定の方法で超動されるテラト印字時に、前記図形・パターン印刷手段により1つ以上の図形・パターンを含む行を印刷しなから、各図形・パターン位置を前記光学式位置検出手段により検出した後、前記印刷スレ演算手段により印刷部におけるスレ量を求める前記印刷スレ量記憶手段に記憶し、以降の通常印刷において前記印刷スレ補正手段を施すことなく、目視による調整をすることなく通常印刷において良好な印刷を行うことを特徴とする。

【0007】 なお、双方向印刷における行間の印刷スレの自動補正に用いてもよい、また、行中における各ボットの印刷方向でのスレの自動補正に用いてもよい、さらに、1つ以上の印字モードを有するシリアル・フリンタ装置において、各印字モードでの自動補正に用いてもよい。

【0008】

【作用】 本発明の上記の構成によれば、目視による調整をすることなく通常印刷において良好な印刷をすることを可能にしたものである。

【0009】

【実施例】 以下、本発明について、実施例に基づき詳細に説明する。

【0010】 図1はマイクロコンピュータ21および周辺装置から構成される一実施例である。ここに示すマイ

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クロコンピュータ21は、CPU、ROM、RAM、入出力ポート、A/D変換器等を総括したものである。
4
【0011】 図形パターン印刷手段11および光学式位置検出手段12はマイクロコンピュータ21の入出力ポートに接続されている。これによりマイクロコンピュータ21から図形パターン印刷要求番号が送られると印字モードAでX方向に印刷動作を実行する。また、光学式位置検出手段12はマイクロコンピュータ21から図形パターン印刷要求番号が送られると特定方向に走査し位置検出動作を実行し、検出された位置情報A α がマイクロコンピュータ21に読み込まれる。さらに、紙送り動作実行後、印刷モードAでY方向に図形パターン印刷動作を実行し、特定方向に位置検出動作を実行する。検出された位置情報A β がマイクロコンピュータ21に読み込まれる。次に、異なる印字モードBで同様に印刷、検出動作を実行し、検出された位置情報B α 、B β がマイクロコンピュータ21に読み込まれる。またマイクロコンピュータ21には印刷スレ演算手段24として印刷スレ演算のための演算式がROMまたはRAMに設定されている。例えば、[A, B] α - [A, B] β に設定しておけば、A α - B β 、B α - A β の値がマイクロコンピュータ21にある印刷スレ量記憶手段14に記憶される。

10
【0012】
【発明の効果】 以上述べたように本発明によれば、自視による誤差をすることなく通常印刷において良好な印刷をすることが可能となる。
【図面の簡単な説明】
【図1】 本発明の構成を示す図。
【符号の説明】
11 図形パターン印刷手段
12 光学式位置検出手段
13 印刷スレ演算手段
14 印刷スレ記憶手段
15 印刷スレ補正手段

